A REASSESSMENT OF LINUM RIGIDUM AND L. CARTERI (LINACEAE) IN FLORIDA[1]

C. M. ROGERS

Biology Department, Wayne State University, Detroit, Michigan 48202

Endemic to southern Florida and separated by several hundred miles from their nearest relatives are two populations of the *Linum rigidum* complex, an assemblage of a dozen or more taxa found otherwise only in western North America. The two populations differ from each other in several ways, perhaps the most conspicuous being that one is essentially glabrous while the other is hirsutulous throughout. In a recent discussion of them (Rogers, 1963) they were designated as varieties of *L. rigidum*, a widespread plant of the Great Plains. Since that time two sorts of information have come to hand which indicate that this arrangemen could be improved upon. As at least two Floras are now being compiled which will include these plants, this appears to be desirable time to reconsider them.

First, I have now had the opportunity to examinme several thousand specimens of the *L. rigidum* complex and to come to some conclusions concerning the range of variability in the whole group as well as in *L. rigidum* itself. I find that the Florida plants most resemble *L. rigidum*, especially var. *berlandieri*, but that they differ in the general absence of red pigment in the corolla, the thicker-walled fruit with well-developed cartilaginous plates and, in the pubescent form, the smaller floral parts, as well as the pubescence. On morphological bases alone, it is probably an arbitrary decision as to whether we consider these plants as varieties or as a separate species. The continued treatment of them as varieties of *L. rigidum* has the merit of pointing up the relationship between the Florida and the Great Plains plants. It also has the purely taxonomic disadvantage of adding to the cumbersomeness of the taxonomy of *L. rigidum*, since several varieties have already been assigned to this species and other variants are known which may warrant some sort of formal recognition.

The second kind of information comes from chromosome studies (Mosquin and Hayley, 1967). Both Florida populations have been found to have n = 30, while the western plants examined, and a number of counts have now been made (Dillman, 1933; Ray, 1944; Osborne and Lewis, 1962; Rogers and Harris, 1966; Mosquin and Hayley, 1967; Harris, unpubl.), all possess n = 15. Further, Mosquin and Hayley (1967) find that the glabrous and pubescent plants possess genomes which differ only by a few translocations but are essentially similar and unquestionably closely allied.

SIDA 3 (4): 209—210. 1968.

[1] Contribution No. 201 from the Biology Department, Wayne State University, Detroit, Michigan.

The tetraploid plants are related to and conceivably derived from plants such as *L. rigidum;* indeed the glabrous form is not greatly different from this putative ancestor. By itself it might not warrant formal segregation from *L. rigidum*. The inclusion of the more highly specialized pubescent form as a part of *L. rigidum* extends much too far for either accuracy or convenience, any but the most conservative species concept. The morphological differences, plus the genetic barrier erected by the polyploid condition, in addition to the geographical isolation, clearly warrant recognizing this, as Small did earlier (1905) as the separate species, *L. carteri*. The similarity of chromosome complements and the high degree of fertility in greenhouse crosses (Mosquin and Hayley, 1967) indicate that the glabrous and pubescent populations must be considered conspecific.

The following treatment, therefore, of these two taxa is more in line with our present knowledge of them.

LINUM CARTERI Small var. CARTERI, N.Y. Bot. Gard. Bull. 3: 424. 1905.

Cathartolinum carteri (Small) Small, N. Am. Fl. 25: 31. 1907.

Linum rigidum Pursh var. *carteri* (Small) Rogers, Brittonia 15: 101. 1963.

This is the pubescent plant, restricted to the vicinity of Miami, Dade County, Florida. Type: *Small & Carter 758*, in pinelands, between Cocoanut Grove and Cutler, Dade County, Florida (NY).

LINUM CARTERI var. **smallii** *Rogers*, var. nov. Plantae tetraploideae; caules glabri; petala 11.5-17 mm. longa; styli 5.1-9.1 mm. longi.

This is the glabrous plant, confined to Collier, Dade and Monroe Counties Florida. Type: *Small & DeWinkeler 9936*, between Everglade and Deep Lake, Collier County, Florida (US; isotypes DUKE, FLAS, GH, IND, MO, NCSC, NCU).

REFERENCES

DILLMAN, A. C. 1933. Chromosome numbers in flax (*Linum*). Science 78:409.

MOSQUIN, T. AND D. E. HAYLEY. 1967. Evolutionary relationships of the southern Florida populations of *Linum rigidum* (Linaceae). Can. Jour. Bot. 45: 1277-1283.

OSBORNE, W. P. AND W. H. LEWIS. 1962. Chromosome numbers in *Linum* from southern United States and Mexico. Sida 1:63-68.

RAY, C. 1944. Cytological studies on the flax genus (*Linum*). Am. Jour. Bot. 31: 241-248.

ROGERS, C. M. 1963. Yellow flowered species of *Linum* in eastern North America. Brittonia 15: 97-122.

ROGERS, C. M. AND B. HARRIS. 1966. Some new chromosome numbers in *Linum*. Madrono 18: 179-180.

SMALL, J. K. 1905. Additions to the flora of subtropical Florida. Bull. N.Y. Bot. Gard. 3: 416-440.